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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Steven E. Boor

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EXAMINER

OLANIRAN, FATIMAT O

ART UNIT

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2615

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/797,804	Applicant(s) BOOR, STEVEN E.	
	Examiner FATIMAT O. OLANIRAN	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/17/2008 have been fully considered but they are not persuasive.

Applicant argues, "...Levitt et al. and Madaffari et al. fail to teach or suggest a hybrid circuit that has a removable portion extending outside the transducer housing and is subsequently removed permanently so that the housing is acoustically sealed after the removal of the removable portion of the hybrid circuit..."

Examiner respectfully disagrees, a hybrid is a combination of two or more separate circuits, and Levitt teaches a hybrid circuit (Fig. 1 and Fig. 2). In addition the EEPROM socket connection removably combines the circuits.

Applicant argues, "...removable portion of the hybrid circuit. Levitt et al. disclose a circuit (an AGC 58, a programmable filter 64, an EEPROM 84, switches 85 and 86) of a hearing aid is coupled to a microphone 57. The circuit is not contained in the microphone housing (See FIG. 2)..."

Examiner respectfully disagrees; Levitt discloses a hearing aid that includes a microphone as well as programmable amplifier and filter (Fig. 2 and col. 3 line 39-41 and col. 4 line 64-68 and col. 5 line 1-11). The hearing aid serves as the microphone housing.

Applicant also argues, "...Levitt et al. and Madaffari et al. fail to teach or suggest a substrate having a first portion contained within the housing and a second portion attached to the first portion extending outside the housing..."

Examiner respectfully disagrees; a substrate is inherent to a circuit because a substrate is simply the base material or platform for a circuit implementation. Levitt et al discloses two circuits (Fig. 1 and Fig. 2) and therefore first and second portion substrates.

In addition applicant argues that the "...second molded piece 42 is actually a diaphragm ring to support the diaphragm 54 and thus does not form part of an enclosure of the substrate as set forth in Claim 20..." Examiner respectfully disagrees; the secondary Madaffari reference is applied because Levitt does not explicitly disclose a molded piece. However, one of ordinary skill in the art would know that a hearing aid would comprise a molded piece. In addition the application of a molded piece in Madaffari does not teach away from the combination which is basically a molded piece housing the circuitry of Levitt.

Allowable Subject Matter

2. The indicated allowability of claim 13 is withdrawn in view of the newly discovered reference(s) to Sasaki et al. (6294439). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1-3, 9-10, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levitt et al (4879749 in view of Madaffari et al. (2002/0090102). Claim 1, Levitt discloses a transducer for coupling acoustic energy between an outside of the housing and an inside of the housing (Fig. 2: microphone 57, col. 4 line 64); and a hybrid circuit partially enclosed within the housing (Fig. 2), the hybrid circuit a first input circuit for coupling a signal from the transducer (Fig. 2: element 58); a filter network (Fig. 2: element 64) coupled to the first input circuit; an output circuit coupled to the filter network (col. 5 line 7-11); a tuner for adjusting the filter network(Fig. 2; 84 :EEPROM, tri-state switches, 85-86); and a controller for altering a value of the tuner(Fig. 1 host controller), the controller having a second input on the removable portion (Fig. 1:element 124 EEPROM socket),

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and a tuning signal coupled to the second input used to adjust the tuner, thereby changing a characteristic of the filter network (col. 2 line 49-51)

Levitt does not explicitly disclose the removable portion being removed after the characteristic of the filter network is changed.

However, Levitt discloses a removable portion used to program the characteristic of the filter (col. 5 line 1-5 and col. 6 line 59-62 and col. 8 line 25-30). It would be obvious to one of ordinary skilled in the art at the time the invention was made that the computer would be disconnected once programming is complete so that the user would not have to carry the programming unit.

Levitt does not disclose a housing having an acoustic seal and wherein the housing is acoustically sealed upon and by the removal of the removable portion.

Madaffari discloses a housing having an acoustic seal (Fig. 2, paragraph 15 line 13-15). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the circuit of Levitt with the housing of Madaffari in order to protect the circuit from EMI and other interferences. In addition it would be obvious to one of ordinary skill in the art at the time the invention was made to modify to seal the device immediately after programming in order to protect the circuitry from EMI and other interferences.

Claim 2 analyzed with respect to claim 1, Levitt further discloses, wherein the controller retains a setting upon receiving the tuning signal (col. 4 line 38-43).

Claim 3 analyzed with respect to claim 1, Levitt further discloses, wherein the removable portion is permanently removed after the controller receives the tuning signal (col. 8 line 25-29 the computer is disconnected after programming).

Claim 9 analyzed with respect to claim 1, Levitt further discloses wherein the second input is coupled to a biasing element, the biasing element maintaining a state after receiving the tuning signal (col. 5 line 34-37).

Claim 10 analyzed with respect to claim 1, Levitt further discloses wherein the transducer is a microphone (Fig. 2: element 57).

Claim 20, Levitt discloses, a transducer assembly having a transfer function of an acoustic energy to electrical energy comprising
a substrate having a first portion inside the housing (Fig. 2, col. 4 line 65) and a second portion removably attached to the first portion extending outside the housing (Fig. 1, host controller connected through EEPROM socket); and
a circuit disposed on the substrate for receiving a signal corresponding to acoustic energy received at the acoustic port (Fig. 2 col. 4 line 66-68),
whereby the transfer function of the miniature transducer assembly can be altered by a signal injected at the second portion of the substrate (col. 4 line 38-42).

Levitt does not explicitly disclose a second portion attached to the first portion. However Levitt discloses a second portion removably attached to the first portion (Fig. 1, host controller connected through EEPROM socket). Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made that during the programming of the hearing aid the EEPROM socket is attached to the hearing aid in order to download the necessary information.

Levitt does not disclose a housing comprising a first molded piece having an acoustic port; a second molded piece coupled to the first molded piece.

Madaffari discloses a housing comprising a first molded piece having an acoustic port (Fig. 2; element 52); a second molded piece coupled to the first molded piece (Fig. 2; element 42).

Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the circuit of Levitt with the housing of Madaffari in order to protect the circuit from EMI and other interferences.

Claim 21 analyzed with respect to claim 20, Levitt further discloses wherein the second portion of the substrate is removably attached to the first portion (Fig. 1; EEPROM socket).

Claim 22 analyzed with respect to claim 20, Levitt further discloses wherein the circuit comprises a component for receiving the signal, the component operable to retain a programmed state after receiving the signal (Fig. 4 EEPROM col. 2 line 48-50).

Claim 23 analyzed with respect to claim 22 and 20, Levitt further discloses wherein the component is coupled to one of a resistor ladder network and a decoder (Fig. 4; element 148, col. 10 line 60-61).

Claim 24 analyzed with respect to claim 20, Levitt further discloses wherein the component is one of a zener-zap diode, an electrically erasable programmable read only memory (EEPROM), a poly-silicon fuse and a laser trimmable hybrid resistor (Fig. 4 EEPROM col. 2 line 48-50).

5. Claim 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levitt et al (4879749 in view of Madaffari et al. (2002/0090102) in further view of Killion (5602925).

Claim 4 analyzed with respect to claim 1, Levitt in view of Madaffari does not disclose wherein the tuner is a ladder network, the ladder network adjustable by activating or deactivating a semiconductor device between an element of the ladder network and a signal ground connection.

Killion discloses wherein the tuner is a ladder network, the ladder network adjustable by activating or deactivating a semiconductor device between an element of the ladder network and a signal ground connection (Fig. 6. col. 6 line 7-9). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify

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the circuit of Levitt in view of Madaffari with the ladder network and semiconductor of Killion in order to save space when implementing the circuit and in order to have a silicon based transistor that can be implemented with the rest of the circuit.

Claim 5 analyzed with respect to claim 4 and claim 1, Killion further discloses wherein the ladder network comprises resistors (Fig 6).

Claim 6 analyzed with respect to claim 5, 4 and 1, Killion further discloses wherein the resistors have a nominal value of 5.5k ohms. However, it would be obvious to one of ordinary skill in the art at the time the invention was made to set the value of the resistive element to 5.5k ohms in the course of circuit design so as to limit current applied or as necessary.

Claim 7 analyzed with respect to claim 4 and 1, Levitt further discloses wherein the ladder network comprises, capacitors (Fig. 4, col. 10 line 66-67).

Claim 8 analyzed with respect to claim 4, Killion further disclose wherein the semiconductor device is a field effect transistor (FET) (Fig.6 col. 6 line 7-9).

6. Claims 13, 15, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levitt et al (4879749) in view of in view of Madaffari et al. (2002/0090102) in further view of Sasaki et al (6294439)

Claim 13, Levitt discloses a portion of the buffer circuit accessible from outside the housing (Fig. 1; element 24);

providing a desired response characteristic for the buffer circuit (col. 6 line 65-67);

measuring an initial response characteristic of the buffer circuit (col. 6 line 68);

comparing the desired response characteristic to the initial response characteristic (col.

7 line 1-2); determining an adjustment using the comparison, the adjustment for

reducing a difference between the desired and initial response characteristics (col. 7

line 1-2); transmitting a signal to a selector circuit in the buffer circuit (col. 7 line 6-8);

and tuning an adjustable filter coupled to the selector circuit (col. 7 line 11-12), the

adjustable filter for modifying the initial response characteristic (col. 7 line 65-67) and

removing the portion of the buffer circuit accessible from outside the housing, the

portion used in transmitting the signal to the selector circuit (col. 8 line 25-29, the

computer is disconnected after programming.)

Levitt does not disclose assembling the buffer circuit in an acoustically sealed housing

and wherein removing the portion of the buffer circuit along one of a scoring and line of weakness on a substrate carrying the buffer circuit.

Madaffari discloses assembling the buffer circuit in an acoustically sealed housing (Fig. 2, paragraph 15 line 13-15).

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Therefore it would be obvious to one ordinarily skill in the art at the time the invention was made to modify the circuit of Levitt with the housing of Madaffari in order to protect the circuit from EMI and other interferences.

Levitt in view of Madaffari do not disclose wherein removing the portion of the buffer circuit along one of a scoring and line of weakness on a substrate carrying the buffer circuit.

Sasaki discloses one of a scoring and line of weakness on a substrate carrying a circuit (abstract line 1-3).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the manufacture of the circuit of Levitt to include the grooves of Sasaki in order to have a circuit that can be easily integrated to with various other circuits.

Claim 15 analyzed with respect to claim 11, Levitt further discloses wherein the tuning the adjustable filter further comprises biasing the selector circuit with a biasing component (col. 5 line 34-40).

Claim 17 analyzed with respect to claim 15 and 11, Levitt further discloses wherein the biasing component is an electrically erasable programmable read-only memory (EEPROM) (col. 2 line 49-52).

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over over Levitt et al (4879749) in view of in view of Madaffari et al. (2002/0090102) in view of Sasaki et al (6294439) in further view of Killion (5602925).

Claim 14 analyzed with respect to claim 13, Levitt in view of Madaffari and Sasaki do not disclose wherein the tuning the adjustable filter further comprises activating a semiconductor device between an element of a ladder network and a ground connection.

Killion discloses wherein the tuning the adjustable filter further comprises activating a semiconductor device between an element of a ladder network and a ground connection (Fig. 6. col. 6 line 7-9). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the circuit of Levitt in view of Madaffari with the ladder network and semiconductor of Killion in order to save space when implementing the circuit and in order to have a silicon based transistor that can be implemented with the rest of the circuit.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levitt et al (4879749 in view of Madaffari et al. (2002/0090102) in view of Sasaki et al (6294439) and in further view of Advani et al. (4926459).

Claim 16 analyzed with respect to claim 15 and claim 13, Levitt in view of Madaffari and Sasaki do not disclose wherein the biasing component is a zener-zap diode.

Advani discloses wherein the biasing component is a zener-zap diode (Fig. 3; element 106, col.7 line 46-47). Therefore it would be obvious to one ordinarily skilled in the art at

the time the invention was made to modify the circuit of Levitt with a zener-zap diode as taught by Advani in order to utilize the breakdown characteristic of diodes.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levitt et al (4879749 in view of in view of Madaffari et al. (2002/0090102) in view of Sasaki et al (6294439) in further view of Suzuki (5365768).

Claim 18 analyzed with respect to claim 15 and 13, Levitt in view of Madaffari and Sasaki do not disclose wherein the biasing component is a polysilicon fuse.

Suzuki discloses wherein the biasing component is a polysilicon fuse (col. 6 line 56-59).

Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the tuning circuit of Levitt in view of Madaffari with a polysilicon fuse, as taught by Suzuki so that the melting or nonmelting of the polysilicon fuse can be used as a digital memory (Suzuki col. 8 line 12-13).

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levitt et al (4879749 in view of Madaffari et al. (2002/0090102) in view of Sasaki et al (6294439) in further view of Lai (6229428).

Claim 19 analyzed with respect to claim 15 and claim 13, Levitt in view of Madaffari and Sasaki do not disclose wherein the biasing component is a laser trimmable hybrid resistor.

Lai discloses wherein the biasing component is a laser trimmable hybrid resistor (col. 1 line 65-66 and col. 2 line 48-49). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the tuning circuit of Levitt in view of Madaffari with a laser trimmable hybrid resistor, as taught by Lai in order to have a resistor that can still be adjusted after the circuit has been assembled.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FATIMAT O. OLANIRAN whose telephone number is (571)270-3437. The examiner can normally be reached on M-F 10:00-6 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FO

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2615